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EXAMINER	
NGUYEN, PHILLIP H	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/726,075	TAI ET AL.	
	Examiner	Art Unit	
	Phillip H. Nguyen	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on March 2, 2007.

2. Per Applicant's request, claims 1, 10, 16, 22 and 27 have been amended. Claims 1-28 are pending and have been considered below.

Claim Rejections - 35 USC § 101

3. The amendment filed on March 2, 2007 overcomes the rejection set forth to claims 22 and 23 of previous action. Therefore, the rejection is withdrawn.

Claim Rejections - 35 USC § 112

4. The amendment filed on March 2, 2007 overcomes the rejection set forth to claims 10, 22-28 of previous action. Therefore, the rejection is withdrawn.

5. Regarding claim 16, the newly cited material "...performed by the device" is unclear to Examiner as to whether the device is USB device or another device. Applicant is required to clarify.

Response to Arguments

6. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant asserts on page 1 of the amendment that the 101 rejection set forth to claims 22 was lacking of clarity because it was blurred by hand written. Examiner apologizes for the inconvenience. Claim 22 was rejected under 35 USC § 101 for not providing a useful, concrete and tangible result because the outcome is not realized as downloading, updating or any other tangible output that would provide a utility. Therefore, the claim is non-statutory.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 7, 11, 12, 16, 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Aikawa et al. (United States Patent No.: US 6,898,751 B2).

As per claim 1:

Aikawa discloses:

- connecting to a host (at least col. 2, line 47-48 "**a single master (USB host) who communicates with one or more slave devices (USB devices)**");

- waiting for a request signal from the host (see at least col. 2, line 53-55 "...**the host controller bulk data request signals (IN tokens) to the USB device(s)**");
- responding to the request signal with a negative acknowledgement (NAK) to intentionally postpone a response to the request signal (see at least col. 2, line 55-56 "**the USB device sends NAK signals unless some bulk data is ready to be transferred by the device**"); and
- downloading data from the data source for a predetermined time period based on the request signal (see at least col. 2, line 56 "...**data is ready transferred by the device**").

As per claim 7:

Aikawa discloses:

- repeating waiting for a request signal from the host, responding to the request signal with a NAK and downloading data from the data source for a predetermined time period based on the request signal, until the data downloaded from the data source has completed (see at least col. 2, line 56-58 "...**data is ready transferred by the device...receive data from other devices**").

As per claim 11:

Aikawa discloses:

- the host is a USB host and the device is a USB device (at least col. 2, line 47-48 "**a single master (USB host) who communicates with one or more slave devices (USB devices)**").

As per claim 12:

Aikawa discloses:

- the predetermined time period is monitored by a timer (**It is inherent in Aikawa in order to calculate the data transfer rate** (col. 2, line 7)).

As per claim 16:

Aikawa discloses:

- connecting to a USB host (at least col. 2, line 47-48 "**a single master (USB host) who communicates with one or more slave devices (USB devices)**");
- waiting for a request signal from the USB host (see at least col. 2, line 53-55 "...**the host controller bulk data request signals (IN tokens) to the USB device(s)**");
- downloading data blocks associated with firmware from a data source based on a predetermined time period associated with the request signal type (see at least col. 2, line 56 & 58"...**data is ready transferred by the device...receive data from other devices**"); and

- repeating the waiting for a request signal (see at least col. 2, line 59 "...the device keeps sending a NAK signals...") and the downloading data blocks from the data source, until the downloading of the firmware is complete (see at least col. 2, line 56-58 "...**data is ready transferred by the device...receive data from other devices**").

As per claim 18:

Aikawa discloses:

- sending a negative acknowledgement (NAK) to the host to intentionally postpone the transmission of the response to the request signal (see at least col. 2, line 55-56 "**the USB device sends NAK signals unless some bulk data is ready to be transferred by the device**").

As per claim 19:

Aikawa discloses:

- determining the signal request type and setting the predetermined time period accordingly (**It is inherent in order to identify which type of data transfer since there are four types of data transfers between a host controller and peripheral units** (see col. 2, line 1-13).

As per claim 20:

Aikawa discloses:

- determining a number of data blocks to be downloaded based on the predetermined time period (see at least col. 2, line 6-8 "**isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)**...").

As per claim 21:

Aikawa discloses:

- the number of data blocks to be downloaded being further based on at least one of a download data rate and a block size (see at least col. 2, line 6-8 "**isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)...**").

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 2-5, 22, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikawa et al. (United States Patent No.: US 6,898,751 B2), in view of Kitagawa et al. (United States Patent No.: US 6,357,021 B1).

As per claim 2:

Aikawa does not explicitly disclose:

- the data source comprising non-volatile memory.

However, Kitagawa discloses:

- the data source comprising non-volatile memory (see at least col. 3, line 35 "**nonvolatile memories**").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to recognize the advantage of using nonvolatile memory. One would have been motivated to use non-volatile memory in Aikawa's approach because non-volatile memory can be electronically erased and reprogrammed.

As per claim 3:

Kitagawa discloses:

- the non-volatile memory is at least one of an Electrically Erasable Programmable Read Only Memory (EEPROM) and a flash memory (see at least col. 3, line 36 "...**EEPROM**...").

As per claim 4:

Kitagawa discloses:

- reading a signature from the non-volatile memory and validating the signature prior to connecting to the host (see at least col. 4, line 25-36 "...**initializes**

hardware and initializes variables...determines whether the firmware stored in the updatable part 220 is valid...").

As per claim 5:

Aikawa discloses:

- reading descriptor information from the non-volatile memory prior to connecting to the host (see at least col. 2, line 61-63 "**Polling occurs when an ED is enabled, a TD is active or if the TD is loaded and activated**...").

As per claim 22:

Aikawa discloses:

- a microcontroller unit (MCU) (see at least col. 2, line 14 "**a microcontroller**"); and
- an instruction memory storing instructions for execution by the MCU upon reset, the execution of the instructions controlling the device to respond with a negative acknowledgment (NAK) in response to a request signal from a host controller, to download the firmware for use by the MCU for a period of time after responding with the NAK, and to continue to respond with NAKs and to download the firmware until downloading of the firmware to the MCU has completed (see at least col. 2, line 54-60 "**the USB device sends NAK signals unless some bulk data is ready to be transferred by the device...the device keeps sending a NAK signals**....").

Aikawa does not explicitly disclose:

- a non-volatile memory having firmware stored therein;

However, Kitagawa discloses:

- a non-volatile memory having firmware stored therein (see at least col. 3, line 35 "**nonvolatile memories**");

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to recognize the advantage of using nonvolatile memory. One would have been motivated to use non-volatile memory in Aikawa's approach because non-volatile memory can be electronically erased and reprogrammed.

As per claim 24:

Aikawa discloses:

- the MCU downloads data blocks associated with the firmware for a predetermined time period based on the request signal (see at least col. 2, line 1-8 "...**four types of data transfers, between host and peripheral units...Isochronous transfers are periodic data transfers at a constant rate (e.g. 1ms)**...).

As per claim 26:

Aikawa discloses:

- the predetermined time period is a first time period for a signal with a data stage and a second time period for a signal without a data stage (predetermined time

period is the time period the device transfers data and time period the host request for the next data).

As per claim 27:

Aikawa discloses:

- the first time period is five hundred milliseconds and the second time period is fifty milliseconds (**It is inherent in Aikawa since his USB systems comply with the USB specifications, version 2.0**...").

12. Claims 6, 8-10, 13-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikawa et al. (United States Patent No.: US 6,898,751 B2), in view of Falik et al. (United States Patent No.: 6,145,045).

As per claim 6:

Aikawa does not explicitly disclose:

- setting a pointer for tracking data downloaded from the data source.

However, Falik discloses:

- setting a pointer for tracking data downloaded from the data source (see at least col. 2, line 25-26 "**the controller generates in the pointer memory a pointer to the first memory, sends the data packet pointed to by the pointer**...").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Aikawa's approach to include a pointer memory

is configured to contain a pointer corresponding to a memory. One would have been motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

As per claim 8:

Aikawa does not explicitly disclose:

- updating a download pointer each time the predetermine time period is completed.

However, Falik discloses:

- updating a download pointer each time the predetermine time period is completed (see at least col. 8, line 50 "...**pointer to be incremented**").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Aikawa's approach to include a pointer memory is configured to contain a pointer corresponding to a memory. One would have been motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

As per claim 9:

Falik discloses:

- the predetermined time period is a first time period for a data request signal, and a second time period for a status request signal (**the predetermined time period between data packet being requested to be transferred**).

As per claim 10:

Aikawa discloses:

- the first time period is a first time period is five hundred milliseconds and the second time period is fifty milliseconds (**It is inherent in Aikawa since his USB systems comply with the USB specifications, version 2.0**...").

As per claim 13:

Aikawa does not explicitly disclose:

- determining and downloading a number of data blocks to be downloaded based on the predetermined time period.

However, Falik discloses:

- determining and downloading a number of data blocks to be downloaded based on the predetermined time period (see at least col. 6, line 16-17 "**a byte counter keeps track of the number of bytes that are transferred**").

Therefore, it would have been obvious to one having an ordinary skill in the art in the time the invention was made to include in Aikawa a counter to keep track of number of bytes (data) to be transferred.

As per claim 14:

Falik discloses:

- the number of data blocks to be downloaded being further based on at least one of a download data rate and a block size (see at least col. 5, line 62-67 "...**all the**

state machines run on a 12 MHz USB clock. All data transfers work on a core bus clock...").

As per claim 15:

Falik discloses:

- setting a loop counter based on the number of data block to be downloaded (see at least col. 6, line 16-17 "**a byte counter keeps track of the number of bytes that are transferred**" – **a byte counter is a loop counter in order to keep track of the first and the last access of data transferring**).

As per claim 17:

Aikawa does not explicitly disclose:

- updating a download pointer that tracks the last data block downloaded.

However, Falik discloses:

- updating a download pointer each time the predetermine time period is completed (see at least col. 8, line 50 "...**pointer to be incremented**").

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Aikawa's approach to include a pointer memory is configured to contain a pointer corresponding to a memory. One would have been motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

13. Claims 23, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikawa et al. (United States Patent No.: US 6,898,751 B2), in view of Kitagawa et al. (United States Patent No.: US 6,357,021 B1), and further in view of Falik et al. (United States Patent No.: 6,145,045).

As per claim 23:

Neither Aikawa or Kitagawa disclose:

- a memory for storing a download pointer to track the firmware download.

However, Falik discloses:

- a memory for storing a download pointer to track firmware download (see at least FIG. 1).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to include a pointer in Aikawa's disclosure to keep track of firmware downloading. One would have been motivated to include a pointer memory in Aikawa's approach for tracking data packet downloaded to the host.

As per claim 25:

Neither Aikawa or Kitagawa disclose:

- the MCU downloads data blocks associated with the firmware for a predetermined time period based on the request signal type from the host controller.

However, Falik discloses:

- the MCU downloads data blocks associated with the firmware for a predetermined time period based on the request signal type from the host controller (see at least col. 6, line 16-17 "**A byte counter keeps track of the number of bytes that are transferred**").

Therefore, it would have been obvious to one having an ordinary skill in the art in the time the invention was made to include in either Aikawa or Kitagawa's approach a counter to keep track of number of bytes (data) to be transferred.

As per claim 28:

Aikawa discloses:

- a timer for monitoring the firmware download (**It is inherent in Aikawa in order to calculate the data transfer rate** (col. 2, line 7)).

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip H. Nguyen whose telephone number is (571) 270-1070. The examiner can normally be reached on Monday - Thursday 10:00 AM - 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PN
4/24/2007

WEI ZHEN
SUPERVISORY PATENT EXAMINER